PINPOINTING PLANT PARTS

Learn how to identify and classify each part of a plant, and take a closer look at the types of plants that you regularly eat.
Pinpointing Plant Parts

Learn how to identify and classify each part of a plant, and take a closer look at the types of plants that you regularly eat.

About the Activity
Have you ever looked closely at a salad? There might be crisp green lettuce leaves, bright orange carrots, juicy tomatoes, cucumbers, peppers, eggplant, or maybe even some sunflower seeds as a topping! You might not realize it as you’re eating lunch, but all these plant foods come from different parts of the plant.

In this activity, kids will observe plants in their neighborhood, determine their various parts, then sketch out their favorite meal and explore the plants that are a part of it.

This activity is part of our 4-H At-Home Plant Science Series. See the rest of the activities here.

Supplies
These simple supplies are all you’ll need for this activity.

- Pencil
- Colored pencils
- Piece of paper
- Ruler
- Magnifying glass (optional)
- Paper plate
- Printable edible plants answer guide
- Printer

Grades: 6-8
Topic: Agriculture, Plant Science, STEM
Time: 30 to 45 min
Activity Steps

1. With adult supervision, go outside and find some plants. As you look around, you’ll see that there are six major parts of a plant:

   - **Roots**: located below ground to act as an anchor and hold the plant into the ground and to absorb and store water and nutrients for the entire plant. Some plants (like dicots) have taproots, which are the large, primary roots with smaller roots shooting off.

   - **Plant stems**: consist of nodes and internodes located above or below ground. Lateral buds are located at the nodes and can give rise to branches or leaves. The main purpose of a stem is to connect leaves and roots and to support the above-ground part of the plant.

   - **Plant leaves**: located above or below ground, their primary purpose is collecting sunlight for photosynthesis. Most of the leaves we eat come from dicot plants which have a wide, flat portion called a blade and a stalk-like part called the petiole. Monocot plants may have modified underground leaves that form bulbs.

   - **Flowers**: the above-ground reproductive structures of plants designed to attract pollinators. Flowers can be different colors, and have a different number of petals.

   - **Seeds**: Most plants have seeds, but some are seedless. Seeds are an embryonic plant usually enclosed in a protective covering. With appropriate conditions, seeds can grow into a new plant.

   - **Fruit**: the reproductive structure of the plant designed to disperse seeds. Fruits are usually sweet and attractive to animals to help in seed dispersal. A drupe is a fruit with a hard stony covering enclosing the seed, like a peach or olive.

2. Identify the different parts of each plant. You won’t likely be able to see the roots, but there are plenty of features above ground to see. Explore to see if you can find any seeds, flowers, or fruits.

   **DID YOU KNOW?**
   Stems of some plants can also be located underground, too. Tubers are modified underground stems used for storage of important nutrients. Examples of tubers are white potatoes, ginger, and cassava.

3. Record your observations on your paper. Just like the scientists that study plants, draw sketches and make note of any important details. Use your ruler to measure the plant’s height, and if you have a magnifying glass, look closely at different features.

   **DID YOU KNOW?**
   Sometimes, the leaves of a plant are actually underground! Bulbs are modified, fleshy leaves used for food storage, and they’re located underground in some monocot plants. Examples of underground leaves include onions, garlic, and shallots.
Activity Steps

(continued...)

4. Now, return indoors and think about foods you enjoy. Using the colored pencils, draw your favorite meal on the paper plate. On the back of your plate, list the different ingredients in the meal you sketched, and think about any plants that made that meal possible. For example, if you sketched tacos, be sure to include corn (for the tortillas), beans, lettuce, tomatoes, black olives, onions, and peppers.

DID YOU KNOW?
What is the difference between a fruit and a vegetable? It can be confusing, but it all comes down to what part of the plant is being eaten. A fruit is the mature ovary of a plant, which is a part of the flower. Fruits come from flowers that have been fertilized and ripen into a fruit. Examples include tomatoes, peaches, or cucumbers. A vegetable is the edible portion of a plant, usually grouped according to the portion of the plant that is eaten such as leaves (lettuce), stem (celery), roots (carrot), tubers (potato), bulbs (onion) and flowers (broccoli).

5. Print out the Edible Plants Answer Guide chart and see if you can classify the fruits and vegetables from your favorite meal, based on the part of the plant that we eat.

DID YOU KNOW?
Plant parts, like nuts and seeds, can be confusing. A true nut is a hard-shelled pod that contains both the fruit and seed of the plant, where the fruit does not open to release the seed to the world. Seeds are embryonic plants usually enclosed in a protective covering. Grains are small, hard, dry seeds with or without attached hulls or layers. All this to say: Peanuts aren’t nuts! They’re legumes, which are edible seeds enclosed in pods.
QUESTION 1
True or False: There are six major parts of a plant.
  a. True
  b. False

QUESTION 2
What part of the plant provides structure and connects the roots to the leaves?
  a. Fruit
  b. Flower
  c. Seed
  d. Stem

QUESTION 3
What are the two major functions of the roots of a plant?
  a. Absorb water and nutrients & help with reproduction
  b. Hold the plant into the ground & absorb water and nutrients
  c. Help with reproduction & hold the plant into the ground
  d. Absorb water and nutrients & complete photosynthesis

QUESTION 4
Which of the following is NOT an example of a bulb?
  a. Garlic
  b. Onion
  c. Shallots
  d. White Potatoes

QUESTION 5
True or False: Fruits come from flowers that have been fertilized and ripen into a fruit.
  a. True
  b. False

Reflection Questions
Bonus questions to inspire wonder.

• How did the ruler and magnifying glass make it easier to observe plants?
• Which observations made it easiest to identify a plant?
• Why is it important for scientists to be able to correctly identify the parts of a plant?
• Were you surprised when you learned about the different parts of the plant that you eat during your favorite meal?
Investigate & Explore

Take what you’ve learned to the next level to learn more and explore the possibilities.

Flower scents and colors attract the insects and animals to carry their pollen. Most fruits, nuts, and some vegetables require insects and animals to enable pollination, but others can rely simply on the wind.

Insects are the most common pollinators and include organisms such as bees, wasps, moths, butterflies, flies, and beetles. Other organisms such as birds and bats can also serve as pollinators, too.

All pollinators serve a very important role. The U.S. Forest Service (part of the U.S. Department of Agriculture) claims about 90% of all flowering plants need the help of animals to move pollen from flower-to-flower for the production of fruits and seeds. Of the estimated 1,330 crop plants grown worldwide for food, beverages, fibers, condiments, spices, and medicines, approximately 75% are pollinated by animals.

Brought to you by:

This work is supported by the USDA National Institute of Food and Agriculture, AFRI - Education and Workforce Development project 2021-67037-33376